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IL-0254-08

GEOTECHNICAL CONDITIONS AND RECOMMENDATIONS FOR DESIGN GREENE VALLEY LANDFILL II DU PAGE COUNTY, ILLINOIS

PREPARED FOR:
WASTE MANAGEMENT OF ILLINOIS, INC.

APRIL 22, 1982

PATRICK ENGINEERING INC.
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Glen Ellyn, Illinois 60137
(312) 858-7050

APPENDIX D

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INTRODUCTION AND SUMMARY

At the request of Waste Management, Inc., Patrick Engineering, Inc. has prepared the following report on the geotechnical aspects of the proposed thirty-five acre expansion of the existing Greene Valley Landfill, located in DuPage County, Illinois. The purpose of the report is to present and interpret the data on soil and groundwater conditions in the proposed expansion area. This report is intended to supplement the initial report, "Geotechnical and Groundwater Study, Green Valley Forest Preserve Sanitary Landfill, DuPage County, Illinois", prepared by EMCON Associates of San Jose, California, March, 1974. Additional borings have been made in the landfill area, shallow wells constructed and monitored, and laboratory tests performed on soil samples since the EMCON report was prepared. This data together with additional information on regional groundwater hydrology is discussed herein.

The new borings tend to further define the EMCON interpretation of the subsurface conditions at the landfill site. The new data on regional groundwater trends, further clarifies the interpretation of groundwater movement and aquifer recharge. The thirty-five acre proposed expansion area was excluded from the original landfill design to accommodate a shooting range as designated in the original final site usage plans. Current plans are to develop the entire site as a landfill and ultimately as a winter sports area. Provided the recommendations presented in this report and those of the EMCON report are followed, the landfill can be developed in a manner compatible with the surrounding environment.

SCOPE OF SERVICES

The scope of services for which Patrick Engineering was retained may be summarized as follows:

1. To collect data on the regional geology and geohydrology of the landfill area.

2. To analyze the data and interpret the general pattern of groundwater flow in the area of the site.

3. To analyze boring logs and laboratory test data supplied by Waste Management for the landfill area.

4. To prepare a supplement to the EMCON report with interpretation of the new data, in fulfillment of the requirements for Part III of the IEPA permit application.

5. To provide recommendations for landfill design in the proposed expansion area.

6. To develop an opinion on the impact of the development on the surrounding environment.

The data utilized in this study included the following:

1. U.S.G.S. topographic maps of the area.

2. Logs of water supply wells within one-quarter mile of the site on file with the State Geological Survey, as of April 12, 1982.

3. Logs of selected public and private wells outside the immediate area considered representative of the regional groundwater conditions.

4 Logs of borings, boring location maps, and laboratory soil test results pertinent to the landfill, furnished by Waste Management.

5. Reports, as listed in the references.

6. Construction/permit drawings for the existing landfill prepared by Geotech Inc. of Joliet, Illinois and maps and cross sections prepared by the Waste Management staff. A list of the drawings furnished to Patrick Engineering is included in this report.

7. Plots of groundwater levels versus time for existing monitoring wells, supplied by Waste Management.

The data was compiled and plotted under the direction of staff engineers. The State Geological Survey, State Water Survey and DuPage County Health Department representatives were contacted to assist with supply and interpretation of well data. The exhibits and tables included with this report summarize and present the data used to formulate the interpretations and recommendations presented herein.

REGIONAL SETTING

Site Location. The thirty-five acre landfill expansion site is in the shape of a parallelogram measuring 800 feet in the north-south direction and 1700 feet in the east-west direction. The site is bounded on the east by Greene Road and on the south by the Will County-DuPage County line, Exhibit 1. The area north and west of the site is designated landfill area and has been partially filled. The area east of Greene Road is owned by the Forest Preserve District and is vacant. The land south of the site is presently open and used for agricultural purposes, is being surface mined or is vacant.

The landfill site is located between the east and west branches of the DuPage River. The site is essentially level to gently sloping toward the southeast. The highest point in the expansion area is U.S.G.S. Elevation 692. The lowest point on the site is U.S.G.S. Elevation 680. The water level in the DuPage River approximately 1700 feet east of the site is normally elevation 643.

Geologic Setting. The geology of the landfill site is described in the EMCON report. In summary, the site is located in an area of glacial deposits comprised predominantly of clay soils of low permeability with lenses and zones of sand and gravel. The thickness of overburden is on the order of 35 to 55 feet. The overburden is underlain by horizontally bedded dolomite of Silurian age. The dolomite is on the order of 200 feet thick and is underlain by a thick zone of flat lying impermeable shale.

Groundwater Conditions. Localized pockets of perched groundwater are occasionally encountered within the zone of glacial till. The predominantly silty clay glacial till offers little groundwater and is not considered a groundwater resource. Zones of permeable sand and gravel lying below the clayey overburden which are connected to the underlying Silurian dolomite are generally water bearing below a depth of 45 feet.

The Silurian dolomite and overlying permeable deposits lying below the glacial till are reliable sources of groundwater in the DuPage County area. Well yields of 500 to 1000 gallons per minute are common in the Silurian dolomite aquifer in this area, although over-pumpage has caused localized, rapid recession of the water level in the aquifer. The shallow aquifer is directly interconnected with the DuPage River in this area. The potentiometric level contours in the shallow aquifer are plotted on Exhibit 1. The contours may be considered as representing the top of the static groundwater level in the aquifer. Water from the aquifer appears to be moving in a southeasterly direction, discharging into the river. As noted on Exhibit 1, where overpumping has created localized cones of depression, some aquifer recharge is occurring from the DuPage River.

The geographic area between the two branches of the DuPage River is an area of groundwater recharge. Recharge occurs through percolation of rainwater primarily through permeable soil deposits extending from the aquifer up to the ground surface. The rise and fall of the potentiometric level in the shallow dolomite aquifer has been monitored by the State Water Survey over several years. The generalized data indicated on Exhibit 1 is based on the generalized levels during the 1970's. Individual well water level readings may not fit Exhibit 1, due to the regional fluctuation in groundwater levels in the shallow aquifer.

The shallow aquifer is underlain by a zone of, for all practical purposes, impermeable shale. Water does not move across the zone of shale. Groundwater movement is therefore generally normal to the potentiometric levels indicated on Exhibit 1.

The permeable zones of limestone and sandstone below the shale aquiclude are reliable sources of groundwater. The deep aquifers are effectively separated from the Silurian dolomite by the flat lying shales. Wells finished in the zone of sandstone and permeable limestone below the shale are not influenced by the potentiometric levels or quality of water in the shallow aquifer.

SITE CONDITIONS

Overburden. Ninety-four borings have been made for the Greene Valley landfill project. Ten of these borings were located on or adjacent to the thirty-five acre expansion area. The deeper borings drilled for the landfill, for which accurate boring locations are available, have been shown on Exhibit 2. In addition, monitoring wells have been installed nearby for which boring logs were supplied. These logs have also been utilized in assessing the site subsurface conditions.

Six cross sections have been drawn through the proposed expansion area, Exhibit 2. The interpreted subsurface investigation data and potentiometric level in the underlying permeable deposit have been plotted on the cross sections, Exhibits 3 and 4. The top of the permeable sand and gravel layer encountered in most of the borings at this site is indicated by the contours shown on Exhibit 2. The zone between the ground surface and the contours of the

permeable layer indicated on Exhibit 2 is comprised of silty clay of very low permeability. Boring B-18 north of the landfill expansion area indicated permeable soils were encountered at a depth of 7.5 feet. At B-18 the silty clay is absent and a zone of sandy silt of moderate permeability was encountered between 1 foot and 7.5 feet. In all other areas the minimum depth to permeable soils on the expansion site is on the order of 20 feet as indicated by the boring logs.

The extent and continuity of the first zone of permeable soils encountered in each of the borings and as indicated by the contours on Exhibit 2 is illustrated by the cross sections. In most areas a three to five foot thick zone of sand and gravel was encountered at approximately elevation 664. In a number of borings this sand and gravel layer is underlain by a relatively thick zone of silty clay. This additional zone of impermeable soil above the aquifer provides a natural, double but discontinuous liner between the proposed landfill disposal zone and the aquifer.

Engineering Properties of the Soils. The engineering properties of the soils have been discussed in the EMCON report. The new data indicates the original interpretation of the soil properties is still applicable. The upper zone of silty clay exhibits a permeability on the order of 1×10^{-7} centimeters per second at natural density. When recompacted to a high density at optimum moisture content this material is expected to yield a permeability to distilled water on the order of 1×10^{-7} centimeters per second. Further laboratory testing is required to determine the minimum density to which the soil must be compacted to yield the required permeability. The silty clay is near optimum moisture content based on the moisture test data reported on the boring logs. The material appears to be an excellent soil for clay liner construction, final cover and

intermediate cover. The cation exchange capacity of the silty clay is on the order of 7 milli-equivalents/100 grams. This test indicates the clayey soils will provide natural attenuation and potential for renovation of leachate. The engineering properties of the silty clay are summarized in Exhibit 5.

The sand and gravel encountered below the zone of silty clay has not been considered as a liner material. The sand and gravel is recognized to be permeable, yet sufficiently well graded to prevent piping of the clay liner into the zone under the anticipated hydrostatic head.

Water Levels. The monitoring wells installed around the existing landfill together with water levels recorded during drilling in new borings, have provided data on the groundwater levels at the site. Although localized, temporary drops in water levels have been recorded in the monitoring wells, this phenomenon is believed to be caused by the bailing procedures used to obtain water quality samples. The monitoring well level records and boring water level measurements have been interpreted to provide the generalized groundwater contours presented on Exhibit 2. The direction of groundwater movement in the area of the proposed expansion is consistent with the regional groundwater conditions. Water in the shallow aquifer below the site appears to migrate very slowly from west to east toward the east branch of the DuPage River. The gradient below the expansion area, indicated by the data is approximately .003 feet per foot.

Considering that the property east of the site is owned by the Forest Preserve District and as there are no wells in the area downgradient of the site, the location of the landfill appears compatible with the local environment.

RECOMMENDATIONS FOR DESIGN

General. The data collected since the original EMCON report was prepared, further defines the geologic conditions of the landfill area. The proposed expansion area was included in the original EMCON study and the recommendations presented in the EMCON report are generally considered appropriate for the design of the landfill expansion. Whereas the EMCON recommendations covered the entire landfill site, the recommendations presented herein apply only to the proposed expansion area. The additional subsurface exploration data obtained since the landfill was permitted, and related experience during landfill operation have been incorporated in the design recommendations presented herein.

Parameters for Design. The landfill will be expanded to accommodate non-hazardous waste. The area method of excavation and filling, will be employed. Lifts of refuse on the order of two feet will be placed in cells of dimensions on the order of 200 feet by 200 feet by 10 feet. All refuse will be compacted and covered with approximately six inches of soil at the end of each working day. The area will be landfilled to approximately 200 feet above the existing grade. A leachate collection system will be incorporated in the landfill to permit collection and treatment of leachate.

The final contours and site use for the landfill development are being determined by Waste Management, Inc. working with the County Forest Preserve District. The life of the landfill, surface drainage, leachate disposal and erosion and runoff control aspects of the design are beyond the scope of this report.

Limits of Landfill. The depth of excavation which will provide a minimum of ten feet of silty clay with a permeability of $1x10^{-7}$ centimeters per second and which will maximize the landfill capacity is indicated in Exhibit 6. The exact limits of excavation cannot be determined until excavation at which time judgment and additional borings must be used to establish the practical maximum limits. The levels indicated in Exhibit 6 permit the leachate collection system to flow toward the connection point at the central north boundary of the expansion area. The proposed bottom configuration will also permit separation, control and removal of non-contaminated rainwater which accumulates on the site during the early stages of landfill development.

Where less than ten feet of soil with a permeability of $1x10^{-7}$ centimeters per second is revealed below the landfill excavation limits as indicated on Exhibit 6, bottom and/or side seal construction will be required. The details of seal construction should include compaction of appropriate silty clay soils at optimum moisture content with a sheep foot type roller to the specified density as determined by laboratory determinations of permeability versus dry density. The field density of the compacted soil should be tested by a qualified soils engineer.

The height of this landfill will result in substantial increases in the effective stress in the clay liner zone. This increase in effective stress due to the surcharge of the refuse will cause consolidation of the natural and compacted in-place liner soils. In addition, consolidation of the underlying sand, silt and gravel layers will occur. The consolidation is expected to reduce the permeabilities from those measured on samples at natural density reported on the boring logs prepared by Testing Service Corporation.

Leachate and Gas Control. The original Geotech Inc. plans for the existing landfill indicate a leachate collection system has been installed. The leachate collection system in the new landfill area will tie into the existing system or into a new parallel outfall pipe. No consideration has been given to the capacity of the existing system into which the new leachate collection system will be tied. In the expansion area a perimeter leachate collection system and internal drains should be set at approximately 600 feet on centers. The level to which leachate will rise in the landfill is a function of the spacing of the leachate collection drains, assuming the leachate collection pipes are not flowing full. A rigorous analysis of the leachate collection system has not been performed. Decreased spacing of the leachate collection drains may be required to control the leachate levels to a specified elevation. The pipe should be installed in a positive projecting mode and encased in compacted non-carbonate gravel. The schedule of leachate collection pipe, arrangement of perforations, as well as the requirements of the stone to be placed around the leachate collection pipes is beyond the scope of this report. Gas collection and disposal systems are similarly beyond the scope of this report.

Monitoring System. Additional monitoring wells should be installed down gradient of the proposed landfill expansion area. The groundwater level contours indicated on Exhibit 2 are approximately perpendicular to the direction of groundwater movement in the zone of saturation. The wells are recommended to be finished in the sand and gravel zone immediately above the dolomite bedrock. The screened portion of the well should extend below elevation 635. Consideration should be given to installing additional shallow monitoring wells in the sand zone encountered between elevation 665 and 660 in the expansion area.

Final Cover and Settlement. The final cover for the site should consist of a nominal four foot thick layer of compacted silty clay. The purpose of the final cover is to limit the infiltration of rainwater and snow melt. Erosion control and stormwater runoff detention system details should be designed in accordance with current engineering practice. Estimates of post construction settlement are so dependent on rates of landfilling, the height of the landfill, the method of placement and type of refuse, that experience at the existing landfill site is considered more appropriate than any type of theoretical settlement prediction.

LIST OF REFERENCE REPORTS

Illinois State Geological Survey, "Water Well Records", Warrenville, Illinois, April, 1982.

Pacey, John G., and Vantine, James V., Geotechnical and Groundwater Study, Green Valley Forest Preserve Sanitary Landfill, DuPage County, Illinois, EMCON Associates, San Jose, California, 1974.

Sasman, Robert T., et. al., Verification of the Potential Yield and Chemical Quality of the Shallow Dolomite Aquifer in DuPage County, Illinois, Circular 149, Illinois State Water Survey, Champaign, Illinois, 1981.

Testing Service Corporation, Report of Soils Investigation, Proposed Sanitary Landfill and Park Facilities South of Hobson Road and West of Route 53, Wheaton, Illinois, March, 1971.

Testing Service Corporation, "Boring Logs, Waste Management Landfill Site, Green Valley Forest Preserve, DuPage County, Illinois", Wheaton, Illinois, April, 1974.

Testing Service Corporation, "Boring Logs, Greene Valley Landfill Site", Wheaton, Illinois, February, 1980.

Testing Service Corporation, "Greene Valley Landfill, Greene Road and 75th Street, DuPage County, Illinois", Wheaton, Illinois, January, 1981.

Testing Service Corporation, "Boring Logs, Greene Valley Landfill", Carol Stream, Illinois, February, 1982.

Willman, H. B., Summary of the Geology of the Chicago Area, Circular 460, Illinois State Geological Survey, Urbana, Illinois, 1971.

LIST OF REFERENCE DRAWINGS

Rectified Aerial Photo-Mosiac Blueline, Greene Valley Forest Preserve, 1" = 300'

Initial Development Plan, Greene Valley Landfill, DuPage County, Illinois, Geotech. Inc., Sheet No. 5 of 12, Job 7291

Greene Valley Landfill, Waste Management, Inc. GVL -

Topo Map - Existing Site, Greene Valley Landfill, DuPage County, IL., Geotech. Inc., Sheet 2 of 12

Aerial Boring Location, Greene Valley Landfill, Waste Management, Inc., Date 12-20-80

Cross Sections, Greene Valley Landfill, DuPage County, IL., Geotech. Inc., Sheet 9 of 12, Job 7291

Cross Sections, Greene Valley Landfill, DuPage County, IL., Geotech. Inc., Sheet 10 of 12, Job 7291

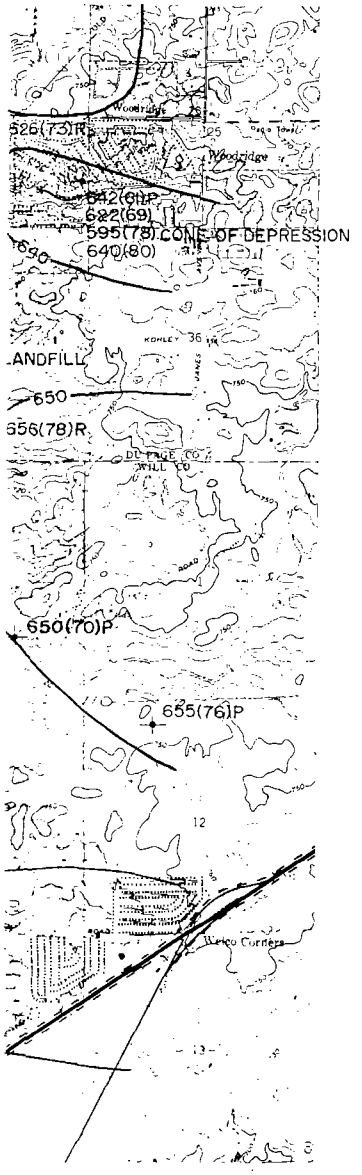
Topographic Map, Portions of Sections 22, 23, 26, 27, 33, 34 & 35, T38N R10E, DuPage County, IL., Chicago Aerial Survey

Monitoring Well Level Data Chart, Greene Valley Landfill, G-102 to G-106, G-11D, G-11S, G-17D, G-17S

Monitoring Well Level Data Chart, Greene Valley Landfill, G-112 to G-117

EXHIBITS

1. Site Location and Groundwater Contours
2. Boring Locations, Sand Contours, Groundwater Contours
3. Cross Sections I-I, II-II
4. Cross Sections III-III, IV-IV, V-V, VI-VI
5. Engineering Properties of the Silty Clay
6. 35 Acre Expansion, Recommended Excavation Limits



LEGEND

655(76)P	STATIC WATER ELEV., IN FEET MSL, AT WATER WELL AND YEAR OF MEASUREMENT, INCLUDING PURPOSE.
—640—	POTENTIOMETRIC SURFACE, ELEV. IN FEET ABOVE MSL.
R	RESIDENTIAL WELL
N	WELL NOT IN USE
FP	FOREST PRESERVE WELL
WM	WASTE MANAGEMENT WELL
P	PUBLIC WELL
(NA)	NOT AVAILABLE
	APPROXIMATE LOCALIZED ZONE OF AQUIFER RECHARGE BY THE E. BRANCH DU PAGE RIVER.

NOTES

1. BASE MAP TAKEN FROM U.S.G.S. TOPOGRAPHIC MAPS: ROMEOVILLE, IL (1973), NORMANTOWN, IL (1973), WHEATON, IL (1972), AND NAPERVILLE, IL (1972).
2. GROUNDWATER CONDITIONS MAY VARY LOCALLY DUE TO PUMPAGE AND SEASONAL VARIATIONS.
3. ALL WATER WELLS WITHIN ONE-QUARTER MILE OF THE LANDFILL SITE FOR WHICH WELL LOGS WERE ON FILE AT THE STATE GEOLOGICAL SURVEY ON APRIL 12, 1982 ARE PLOTTED.

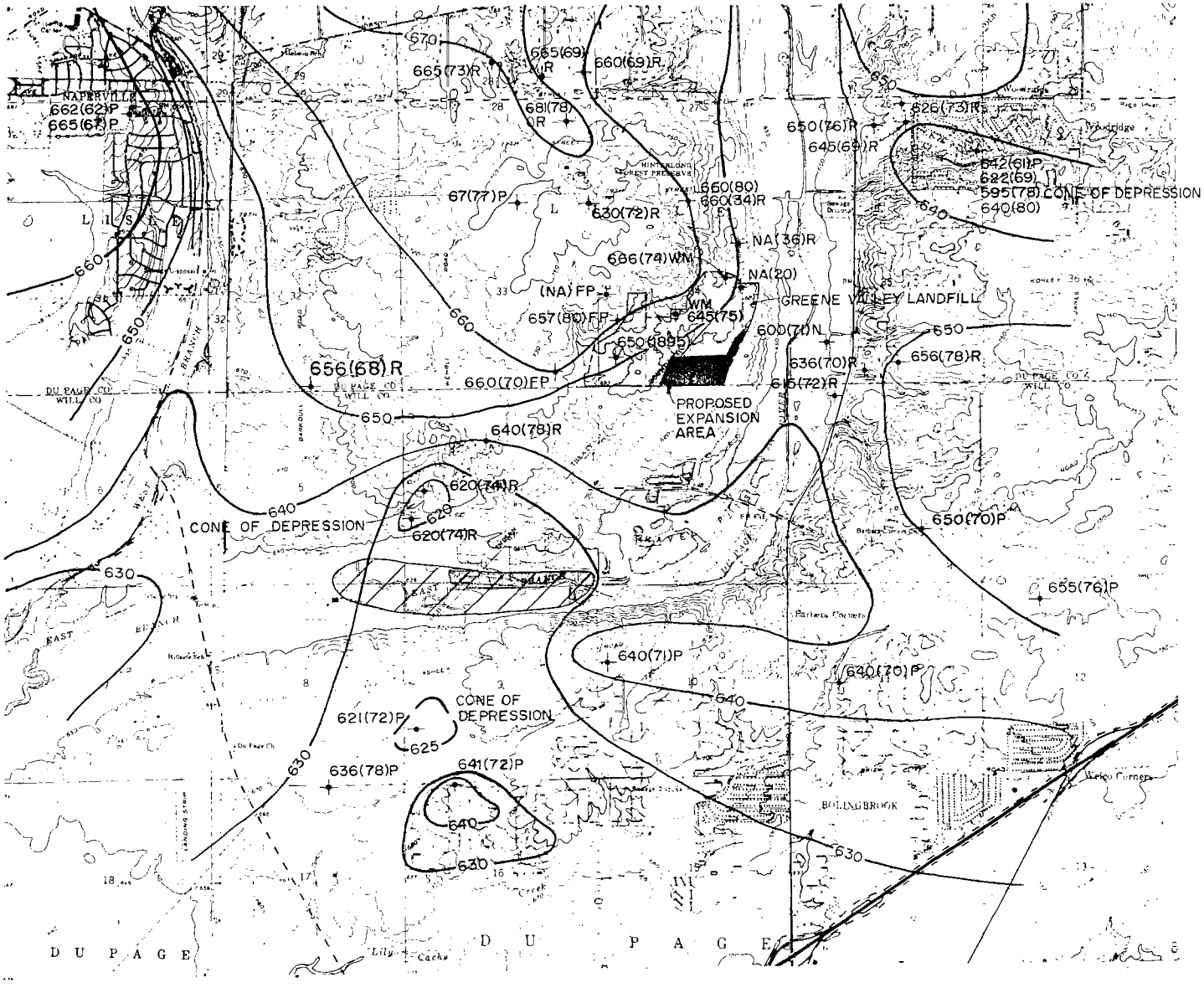
Scale 0 2000 4000 Feet

WASTE MANAGEMENT OF ILLINOIS, INC.
GREENE VALLEY LANDFILL II

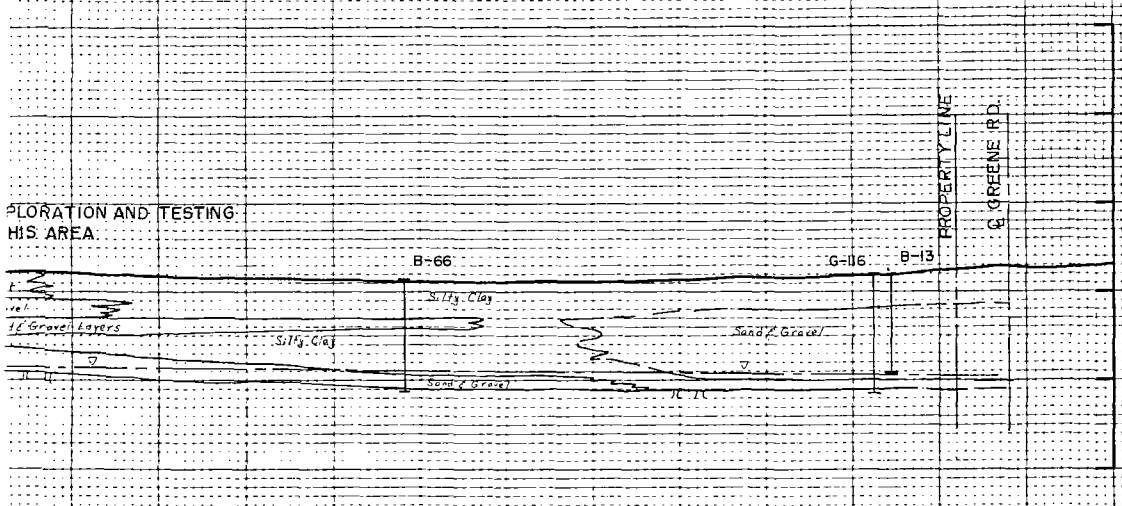
SCALE	APPROVED BY:	DESIGNED BY: K.M.B
DATE APRIL 1982	Daniel P. Dietzler	DRAWN BY M.A.I

SITE LOCATION & GROUNDWATER CONTOURS

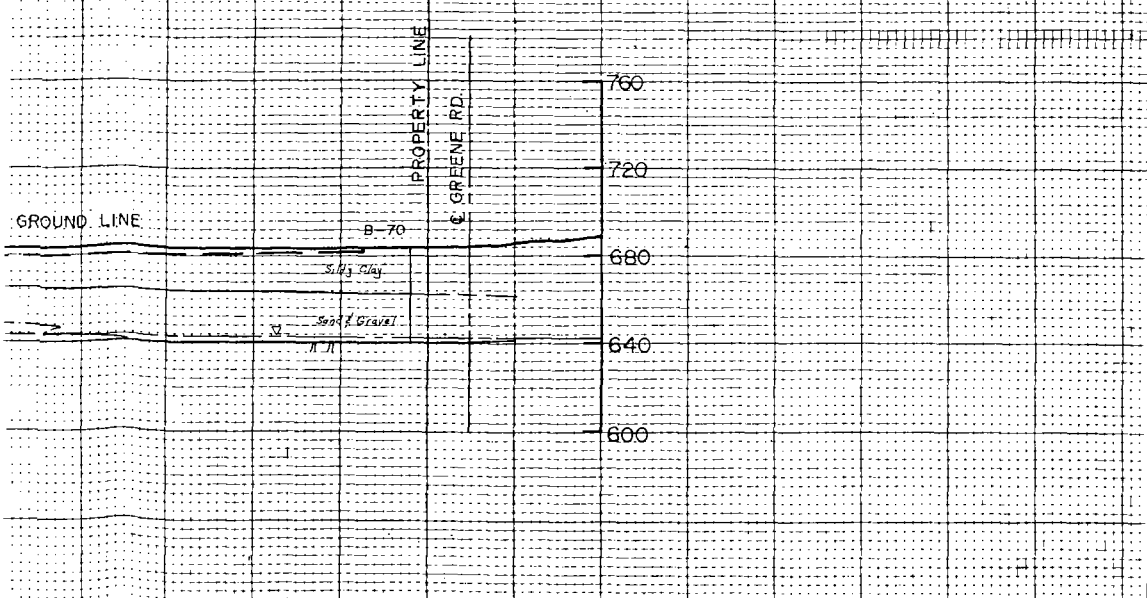
PATRICK ENGINEERING INC. | EXHIBIT NUMBER 1


N
NAPERVILLE
662(62)P
665(67)P
665(73)R
665(69)R
660(69)R
681(78)R
670
650(76)R
645(69)R
626(73)R
642(61)P
622(69)
595(78)CONE OF DEPRESSION
640(80)
690
650(80)
660(34)R
630(72)R
67(77)P
NA(36)R
686(74)WM
NA(20)
(NA)FP
WM
GREENE VALLEY LANDFILL
657(80)FP
645(75)
600(70)N
650(88)S
656(68)R
660(70)FP
636(70)R
656(78)R
615(72)R
PROPOSED
EXPANSION
AREA
640(78)R
620(74)R
CONE OF DEPRESSION
650(70)P
655(76)P
640(71)P
640(70)P
621(72)P
625
CONE OF
DEPRESSION
636(78)P
641(72)P
640
630
660
650
640
630
DU PAGE CO
WILL CO
DU PAGE
DU PAGE

PLORATION AND TESTING
HIS AREA.



I-I



LEGEND

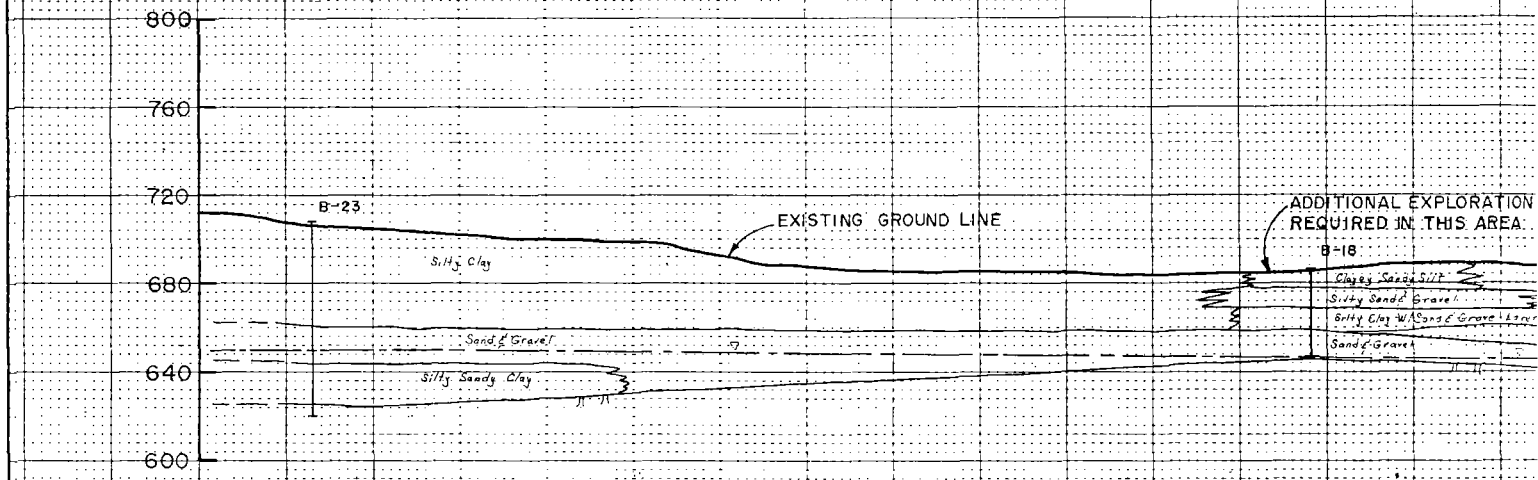
—▽— APPROXIMATE GROUNDWATER LEVEL CONTOUR IN SHALLOW AQUIFER, APRIL 1982.

NOTES

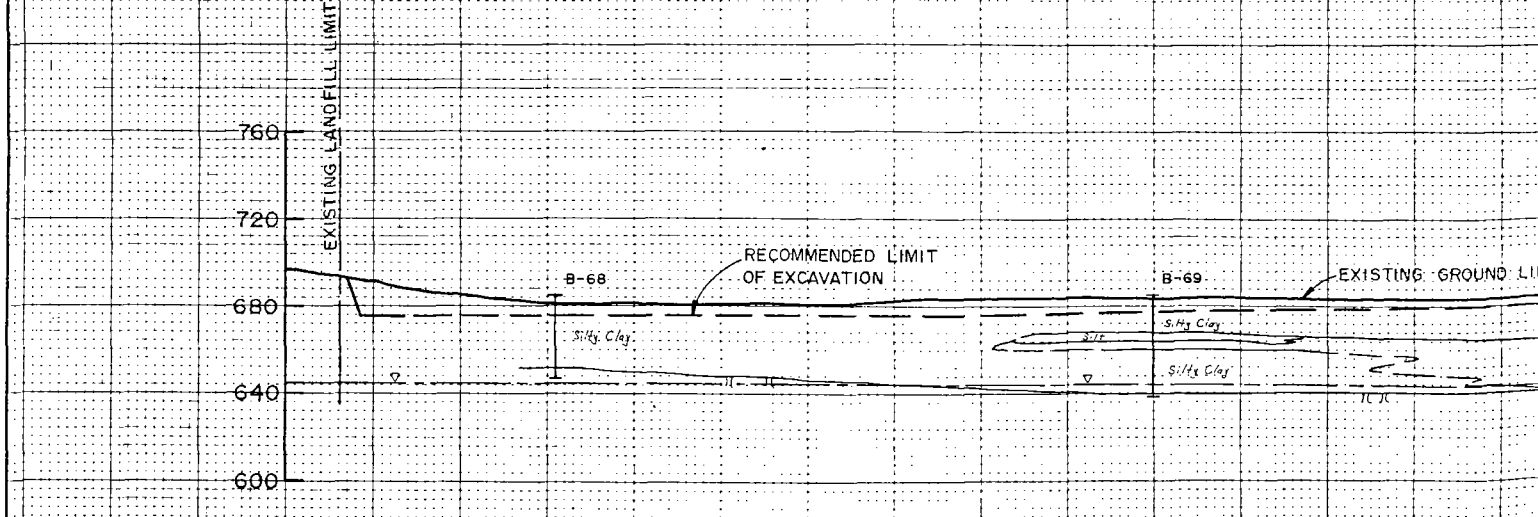
1) MINIMUM OF TEN FEET OF SOIL WITH A PERMEABILI OF 1×10^{-7} CM/SEC. OR LESS SHALL SEPARATE TH REFUSE FROM ANY ZONE OF SAND AND GRAVEL.

HORIZONTAL 0 100 FEET VERTICAL 0 40 FE

WASTE MANAGEMENT OF ILLINOIS, INC. GREENE VALLEY LANDFILL II		
SCALE AS SHOWN	APPROVED BY Daniel P Dutler	DESIGNED BY K.K
DATE APRIL 1982		DRAWN BY W.M
CROSS SECTIONS I-I, II-II		
PATRICK ENGINEERING INC.		EXHIBIT NUMBER 3



CROSS SECTION I-I



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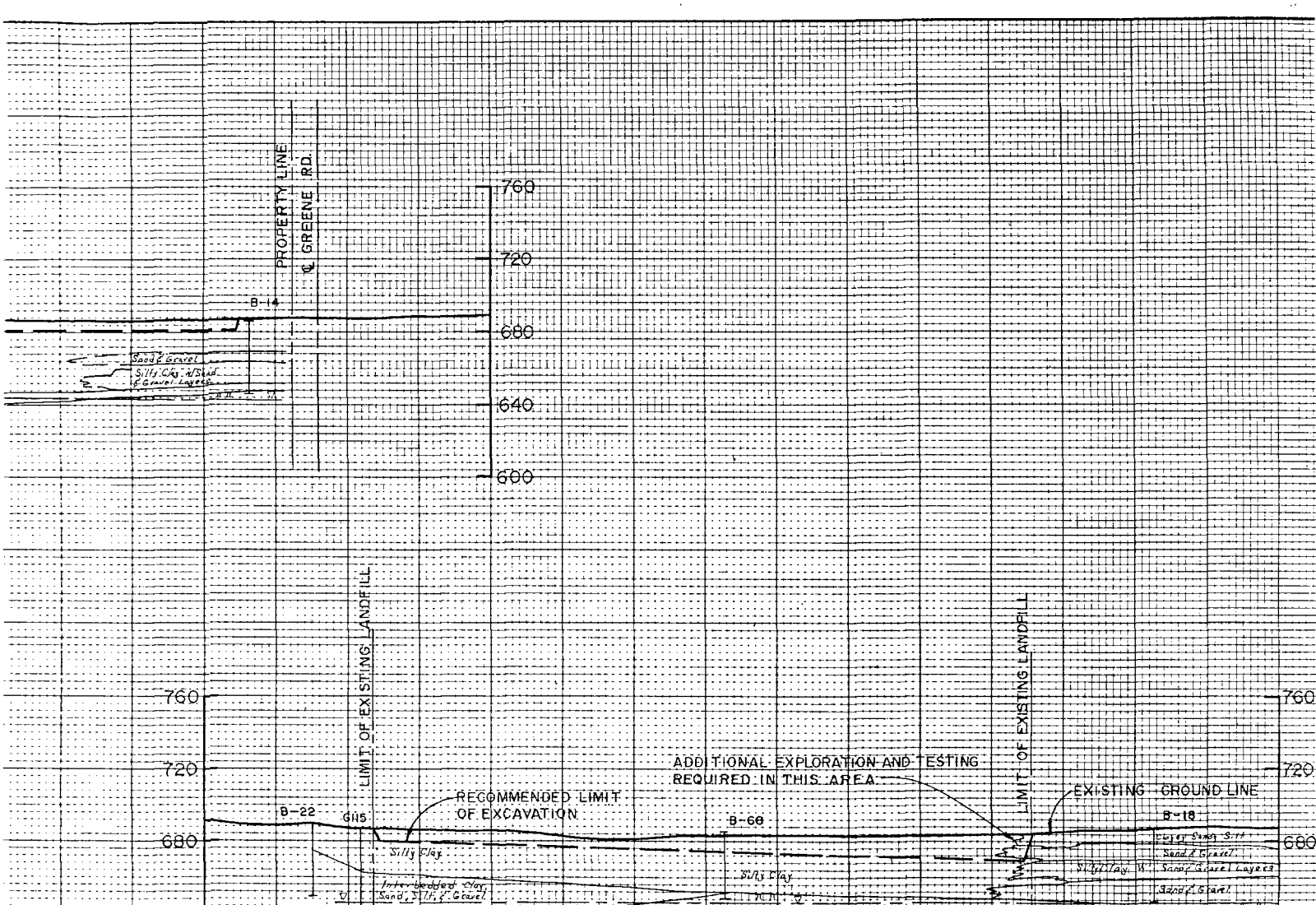

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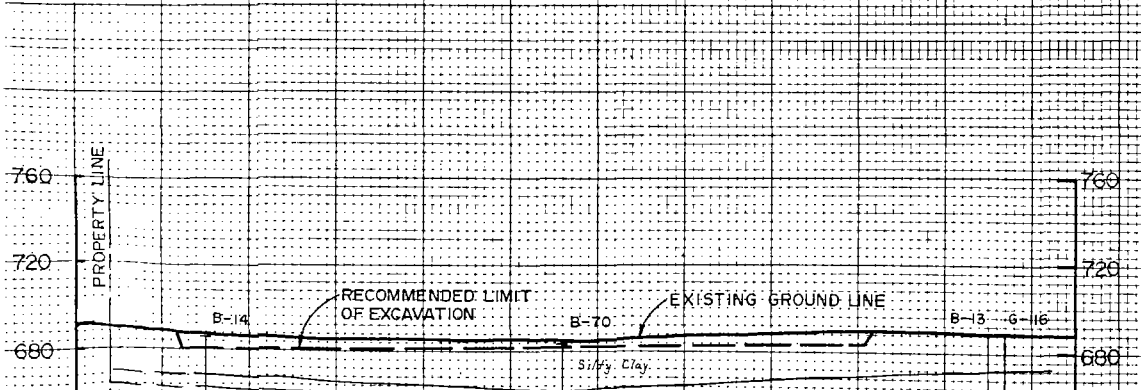


CROSS SECTION VI-VI

LEGEND

—▽— APPROXIMATE GROUNDWATER LEVEL CONTOUR IN SHALLOW AQUIFER, APRIL 1982

NOTES

1) MINIMUM OF TEN FEET OF SOIL WITH A PERMEABILITY OF 1 x 10^{-7} CM/SEC. OR LESS SHALL SEPARATE THE REFUSE FROM ANY ZONE OF SAND AND GRAVEL.

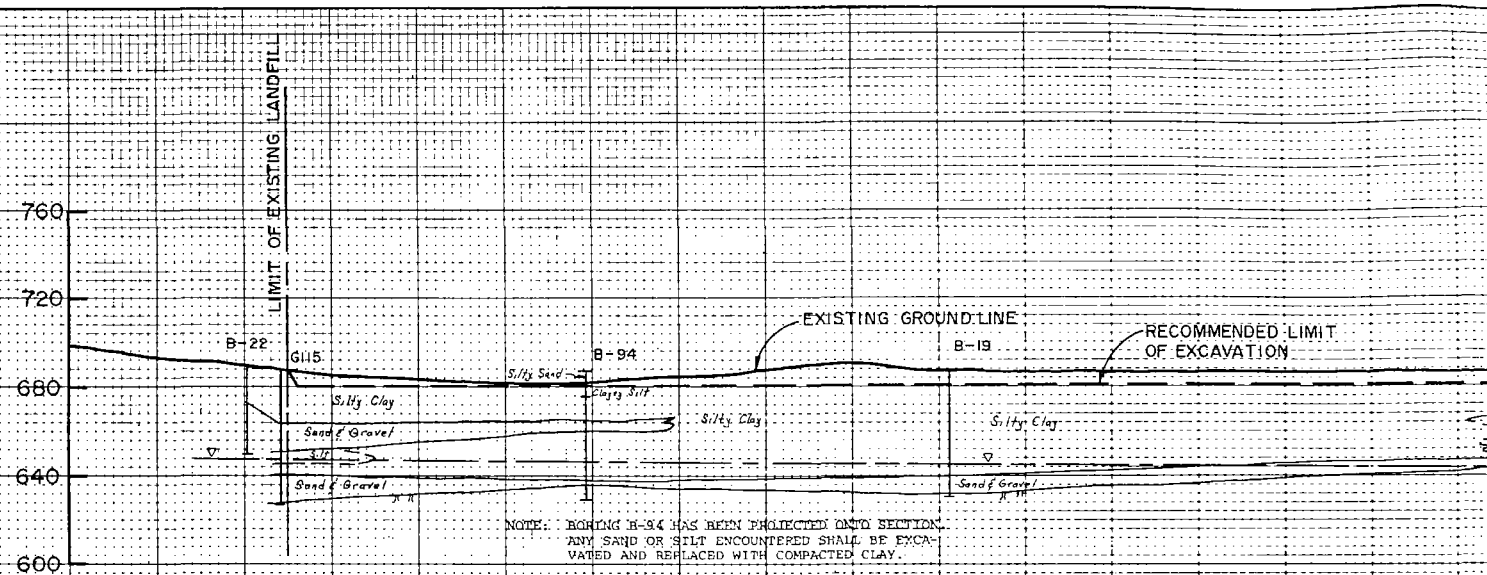
HORIZONTAL 0 100 FEET VERTICAL 0 40 FEET

WASTE MANAGEMENT OF ILLINOIS, INC.
GREENE VALLEY LANDFILL II

SCALE AS SHOWN	APPROVED BY	DESIGNED BY KJ
DATE APRIL 1982	Daniel P. Deighton	DRAWN BY WH

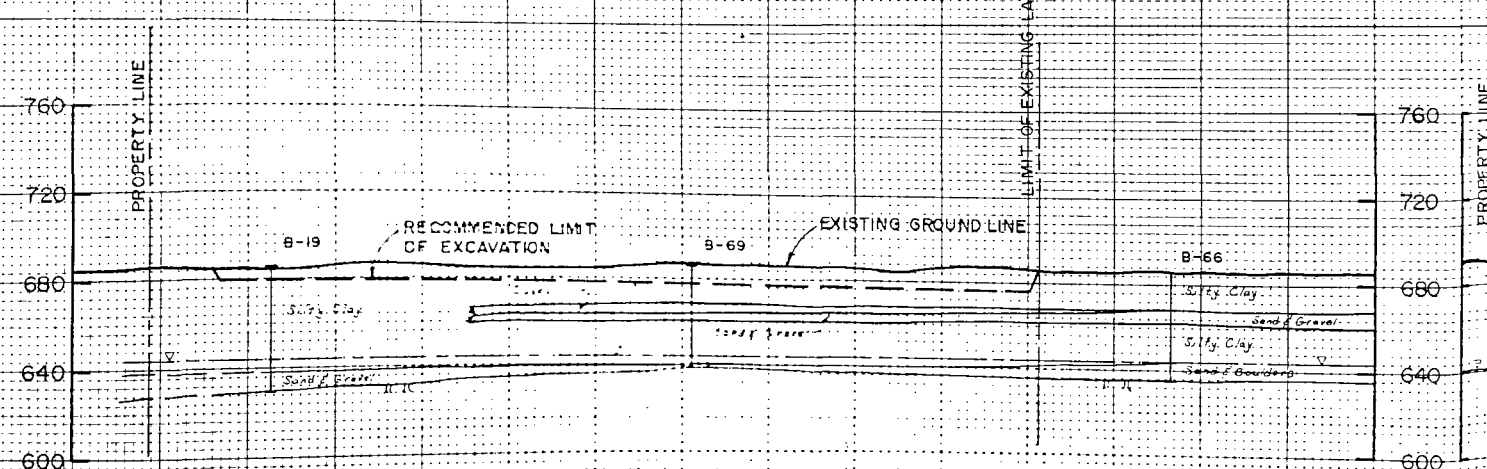
CROSS SECTIONS III-III, IV-IV, V-V, VI-VI

PATRICK ENGINEERING INC. EXHIBIT NUMBER 4



NOTE: BORING B-94 HAS BEEN PROJECTED ONTO SECTION. ANY SAND OR SILT ENCOUNTERED SHALL BE EXCAVATED AND REPLACED WITH COMPACTED CLAY.

CROSS SECTION III-III



CROSS SECTION V-V

ENGINEERING PROPERTIES OF THE SILTY CLAY

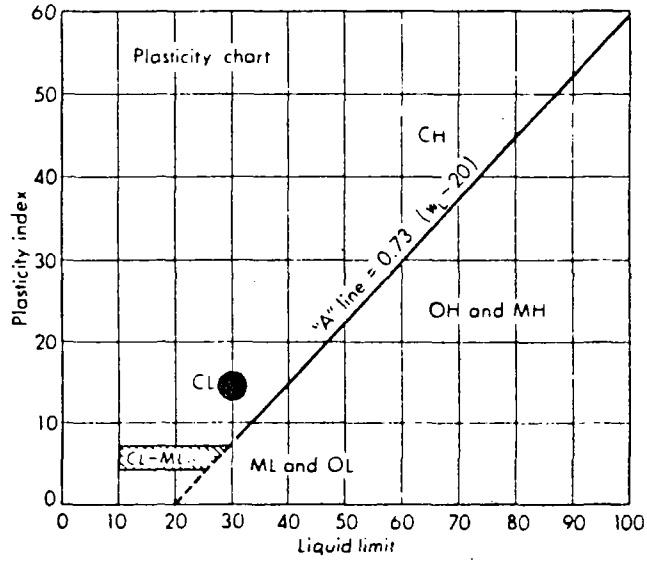
	No. of Tests	Average	Minimum	Maximum
Permeability (cm/sec):				
Natural:	12	9.0×10^{-8}	1.4×10^{-8}	4.6×10^{-7}
Remolded:	4	2.0×10^{-7}	1.5×10^{-7}	3.1×10^{-7}
Ion Exchange Capacity:				
(Milli-equivalents per 100 Grams)	4	6.6	4.2	7.9
Atterberg Limits:				
Liquid Limit, LL:	24	30	18	41
Plasticity Index, PI:	24	14	5	23
Particle Size Distribution:				
% Gravel	3	2	0	3
% Sand	3	10	5	15
% Silt	3	51	48	53
% Clay	3	38	34	44

Soil Classification:

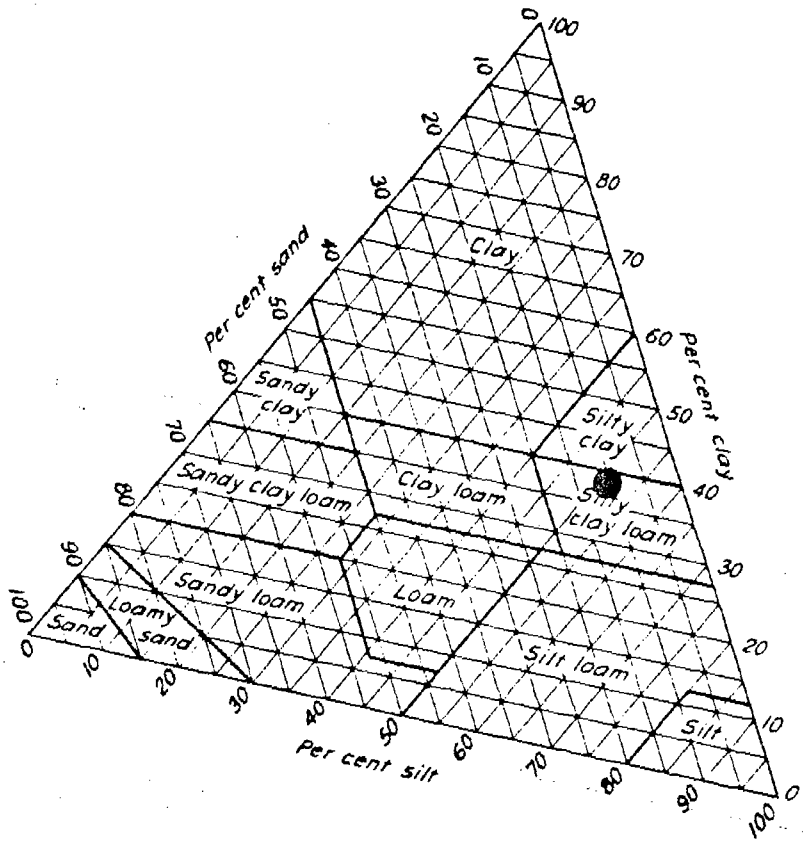
Unified Soil Classification System: CL

U. S. Dept. of Agriculture: Silty Clay, Silty Clay Loam

Fine-grained soils (More than half of material is smaller than No. 200 sieve)	Silts and clays (Liquid limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		OL	Organic silts and organic silty clays of low plasticity
	Silts and clays (Liquid limit greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
	Highly organic soils	Pt	Peat and other highly organic soils



UNIFIED SOIL CLASSIFICATION (PLASTICITY) OF THE SILTY CLAY



USDA CLASSIFICATION OF THE SILTY CLAY

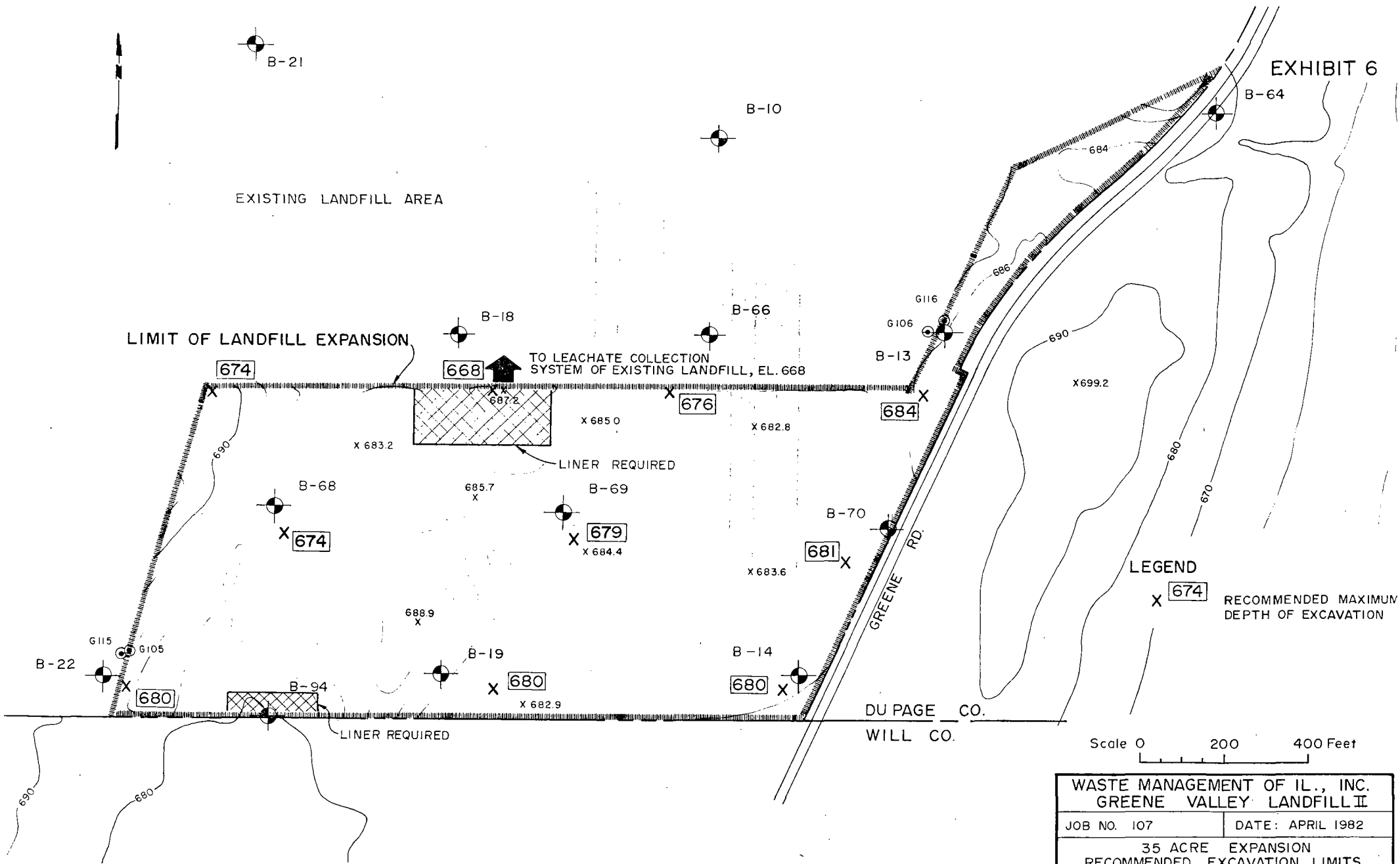


EXHIBIT 6
B-21
B-10
B-64
EXISTING LANDFILL AREA
B-18
B-66
LIMIT OF LANDFILL EXPANSION
TO LEACHATE COLLECTION SYSTEM OF EXISTING LANDFILL, EL. 668
668
674
676
684
B-13
G116
G106
686
684
690
X699.2
680
670
687.2
X 685.0
X 682.8
X 683.2
LINER REQUIRED
B-68
685.7
B-69
674
679
X 684.4
B-70
681
X 683.6
GREENE RD.
LEGEND
674
RECOMMENDED MAXIMUM DEPTH OF EXCAVATION
688.9
G115
G105
B-22
B-19
B-14
680
680
B-94
X 682.9
LINER REQUIRED
DU PAGE CO.
WILL CO.
690
680
Scale 0 200 400 Feet
WASTE MANAGEMENT OF IL., INC.
GREENE VALLEY LANDFILL II
JOB NO. 107
DATE: APRIL 1982
35 ACRE EXPANSION
RECOMMENDED EXCAVATION LIMITS
PATRICK ENGINEERING INC.

DuPage
Lisle Twp / Greene Valley

Letter RTR Sent

Waste Management, Inc.
900 Jorie Boulevard · Oak Brook, Illinois 60521 · 312/654-8800

December 20, 1979

Mr. Rauf Piskin, Manager
Hydrogeology Unit
Technical Operations Section
Division of Land/Noise Pollution Control
Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Dear Mr. Piskin:

This letter is in response to the enclosed copy of your November 6, 1979 letter.

Our monitor well purging and maintenance program has, indeed, disclosed that monitor well G102 at E. Peoria/Tazewell Landfill and G103 at Antioch/CCD Disposal site are bent. We have been sampling G103 with a 1-1/4" O.D. sampler/baler. We feel that the background water quality information collected over the past few years makes these two wells valuable indicators. In addition, we can build a small diameter, non-mechanical sampler that can remain at the well sites for everyone's use. We will proceed with these plans unless you indicate otherwise.

As has been mentioned to the Agency by Chemical Waste Management, CID well G103 has been accidentally destroyed. CID II well G107 replaces the old G103. The two wells are within 20 feet of one another. G107 is screened in the bedrock aquifer; old G103 was screened in clay. This is the reason that Chemical Waste Management cannot provide you with test results from G103. Please make note of this fact in your files.

As you know, most of the wells at Greene Valley are screened in clay - not in the aquifer. We intend to correct this problem by screening the new wells in the aquifer. The new wells will be located as close as is practicable to the existing ones. We intend to have the new wells completed in time for the April sampling. We will keep you informed.

Sincerely,

Scott Otterson
District Engineer

SO:db

Encl.

ILLINOIS EPA
Environmental Protection Agency
2200 Churchill Road, Springfield, Illinois 62706

217/782-6760

Refer to: Lake County -- 09700501 -- Antioch/CCD Disposal
Tazewell County -- 17980602 -- E. Peoria/Tazewell Lf.

November 6, 1979

Waste Management, Inc.
900 Jorie Boulevard
Oak Brook, Illinois 60521

Attention: Mr. Bert Fowler

Gentlemen:

This letter is written in regard to the water monitoring programs at the above referenced sites.

The monitor well G103 at the Antioch/CCD Disposal site is obstructed. The monitor well G102 at the E. Peoria/Tazewell Co. Lf. site is bent. These wells shall be repaired so as to be made operable. If conditions are such that a cannot be repaired, a new monitor well shall be installed next to and with the same well construction design as the damaged well. We ask that you correct the above deficiencies immediately,

If you have any questions, please feel free to contact Mr. Rod Bloese or me.

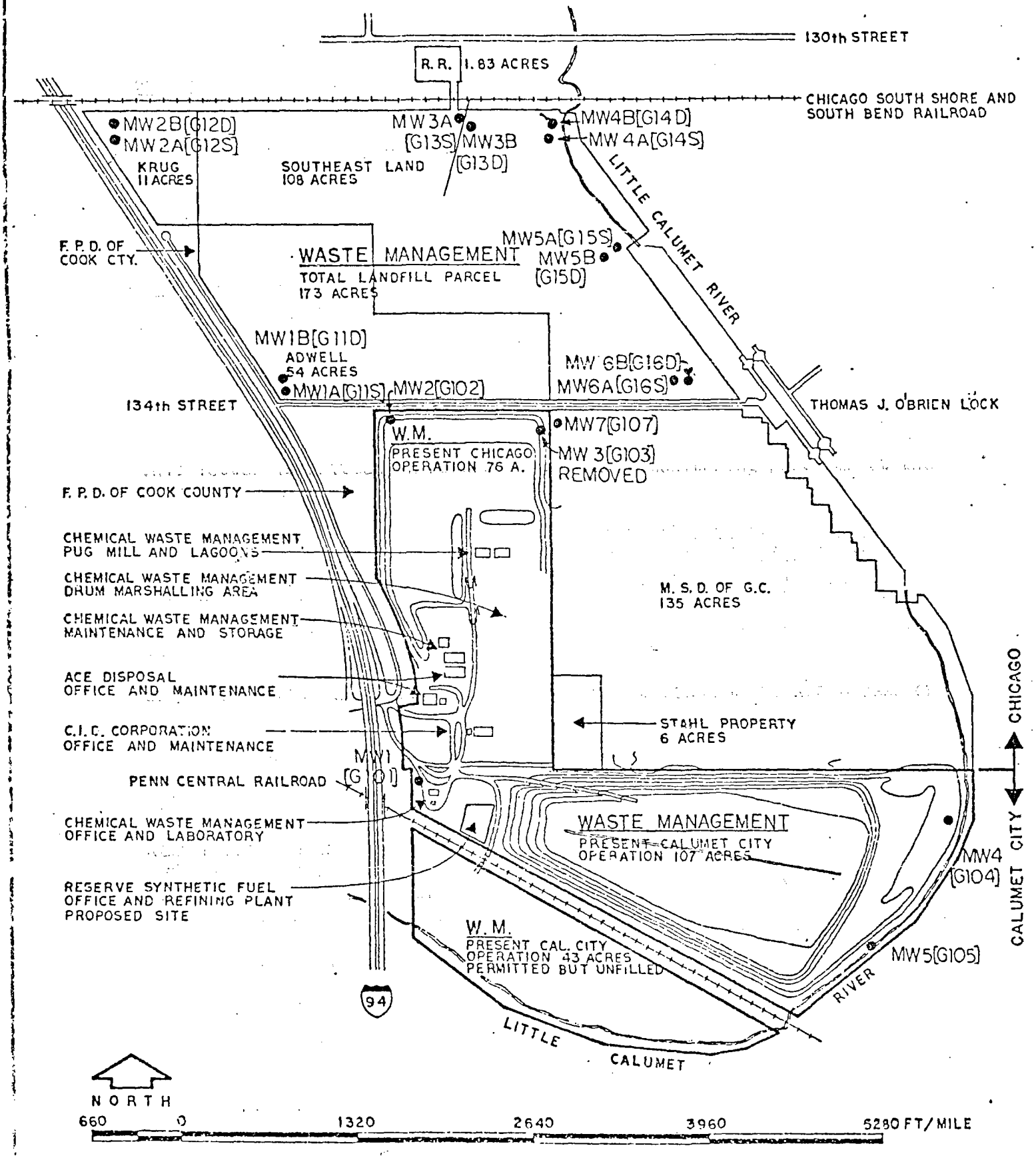
Very truly yours,

Rauf Piskin, Manager
Hydrogeology Unit
Technical Operations Section
Division of Land/Noise Pollution Control

RP:RB:b1b/1028b/4

cc: Division FOS File
Northern Region
Central Region

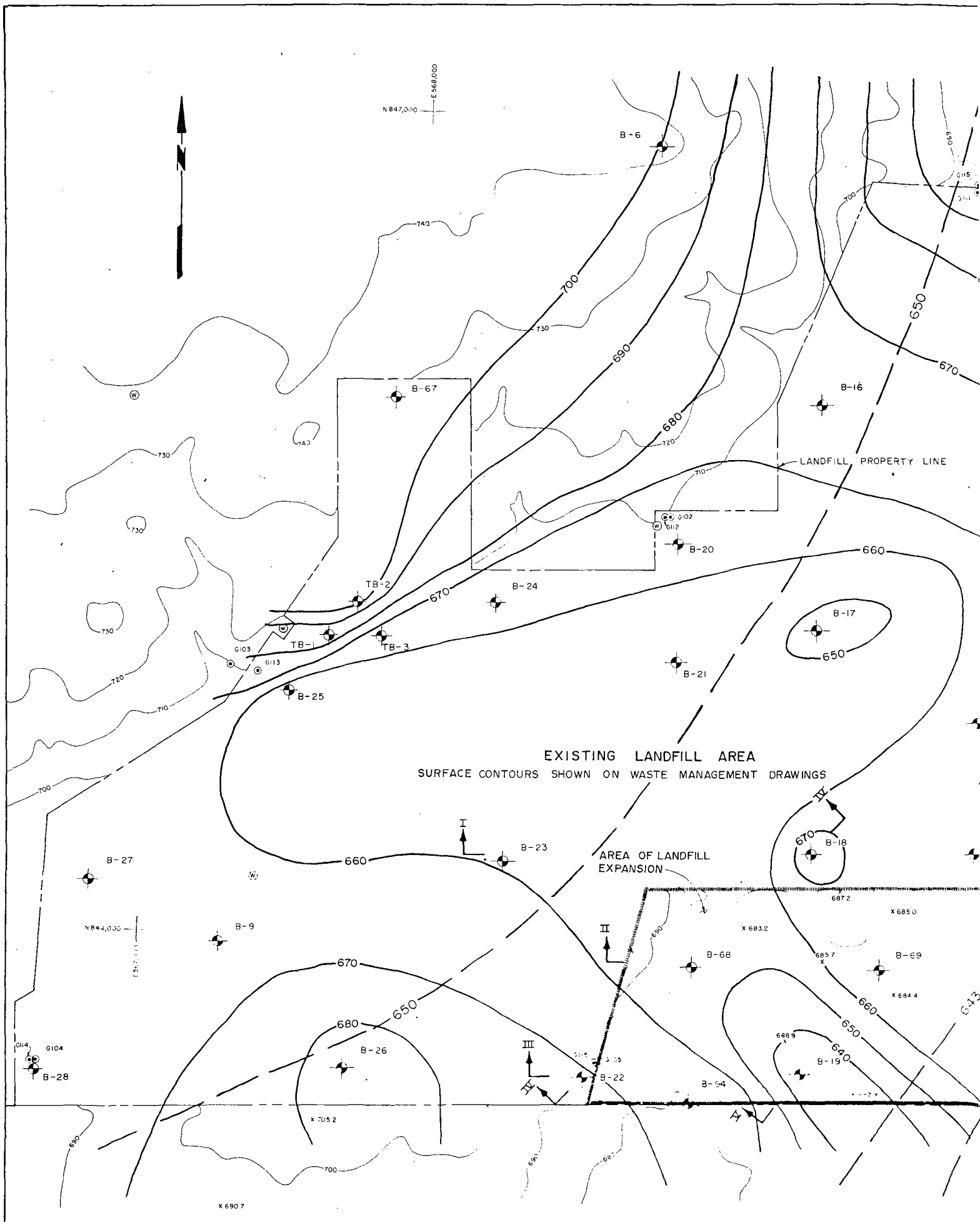
cc: Carl Hansen, Jr.
Jerry Kruszka
Scott Ritterson
Phil Rooney

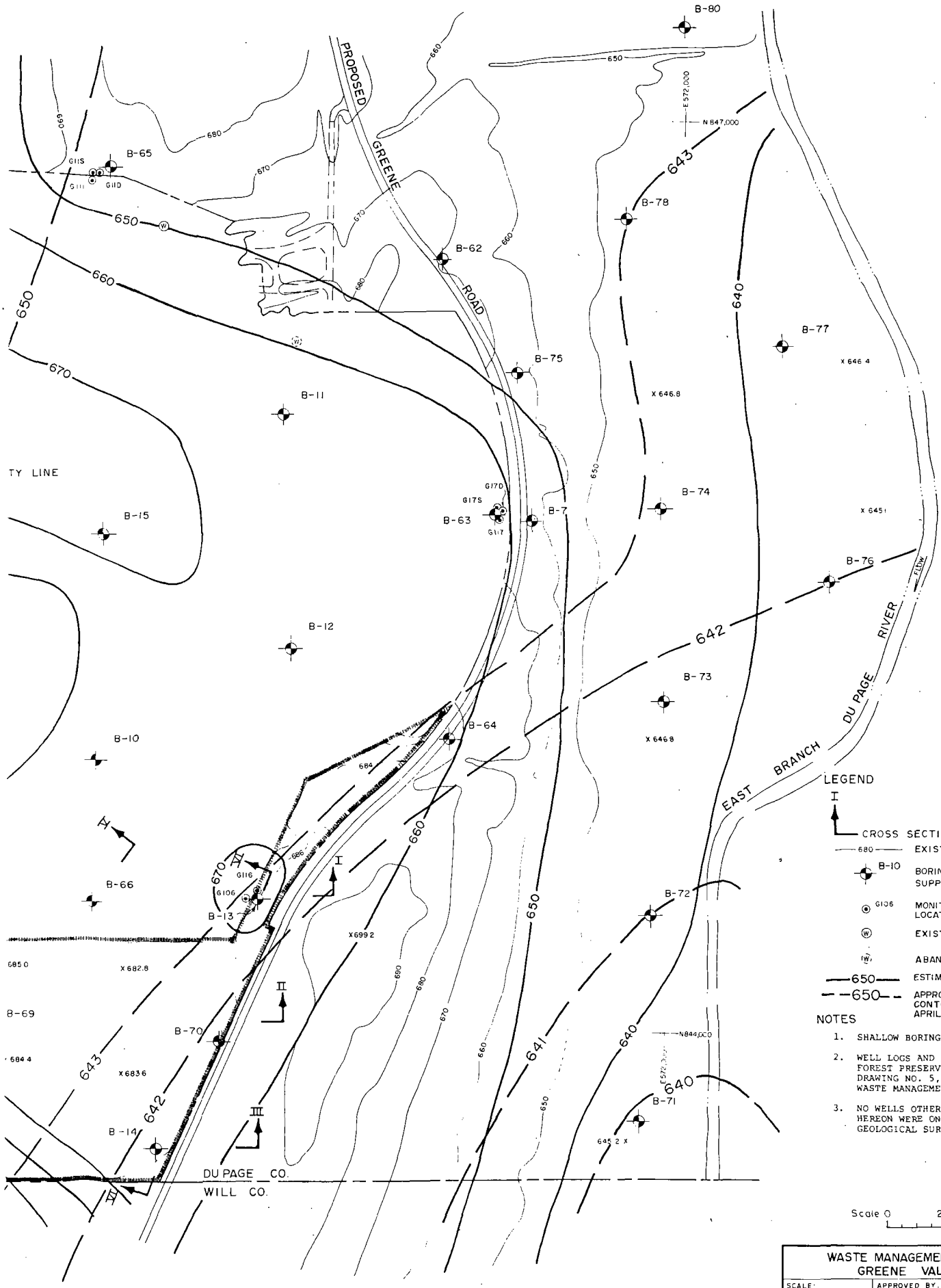


EXISTING CONDITIONS

JANUARY 11, 1979
HARABURDA

C.I.D. ENVIRONMENTAL COMPLEX


N 847,000
E 568,000
B-6
B-67
B-16
LANDFILL PROPERTY LINE
G102
G112
B-20
TB-2
B-24
TB-1
TB-3
G103
G113
B-25
B-17
B-21
EXISTING LANDFILL AREA
SURFACE CONTOURS SHOWN ON WASTE MANAGEMENT DRAWINGS
I
B-23
AREA OF LANDFILL EXPANSION
IV
B-18
687.2
X 685.0
X 683.2
II
B-27
N 844,000
B-9
B-68
685.7
B-69
X 684.4
B-26
680
650
670
660
640
688.9
B-19
G114
G104
B-28
III
B-22
B-64
X 705.2
X 690.7
700
690
730
740
720
710



LEGEND

I — I CROSS SECTION

680 EXISTING CONTOUR

B-10 BORING, LOG AND LOCATION SUPPLIED TO PATRICK ENGR

G106 MONITORING WELL, LOG AND LOCATION SUPPLIED TO PATRICK ENGR

(W) EXISTING WATER WELL

(W) ABANDONED WATER WELL

650 ESTIMATED TOP OF SAND CONTOUR

650 APPROXIMATE GROUNDWATER LEVEL CONTOUR IN SHALLOW AQUIFER, APRIL 1982.

NOTES

1. SHALLOW BORINGS IN ROAD NOT SHOWN.
2. WELL LOGS AND LOCATIONS OBTAINED FROM FOREST PRESERVE DISTRICT, GEOTECH DRAWING NO. 5, EMCON REPORT AND WASTE MANAGEMENT FILES.
3. NO WELLS OTHER THAN THOSE INDICATED HEREON WERE ON FILE WITH THE STATE GEOLOGICAL SURVEY ON APRIL 12, 1982.

Scale 0 200 400 Feet

WASTE MANAGEMENT OF ILLINOIS, INC.
GREENE VALLEY LANDFILL II

SCALE:	APPROVED BY:	DESIGNED BY K.M.S
DATE APRIL 1982	Daniel R. Ritzler	DRAWN BY W.M

BORING LOCATIONS, SAND CONTOURS, & GROUNDWATER CONTOURS

PATRICK ENGINEERING INC. EXHIBIT NUMBER 2